Robust and Fast BiCG Method using SIMD-Accelerated DD Arithmetic Hidehiko Hasegawa $\ ^1$

Toshiaki Hishinuma

Convergence of Krylov subspace methods sometimes stagnate because of rounding errors. High precision arithmetic is one of solutions for this problem, however it's costly. We developed Double-double precision arithmetic library using AVX2 SIMD functions, and reduced its computation cost up to three times of that of Double precision arithmetic. In this poster presentation, we show how to combine Double-double precision arithmetic and Double precision arithmetic reasonably for BiCG method.

¹University of Tsukuba, Japan (hasegawa@slis.tsukuba.ac.jp)